

Brownfields

Success Story

Reclaiming Abandoned Mine Lands One Parcel at a Time

Luzerne County, Pennsylvania

Though a boon to the economy for nearly 200 years, coal mining has not been kind to Pennsylvania's natural environment. In Luzerne County, in the northeastern part of the state, the legacy of anthracite extraction includes thousands of acres of abandoned mine lands, as well as local streams and wetlands contaminated with acid mine drainage.

Leading the charge to clean up and restore these damaged lands and waterways is the nonprofit Earth Conservancy. Founded in 1992 and based in Ashley, Earth Conservancy partners with government agencies, educational institutions, other conservation groups, businesses and residents to reclaim and prepare former coal mining lands in Luzerne County for productive reuse.

In 1994, Earth Conservancy purchased nearly 16,500 acres from the bankrupt estate of the former Blue Coal Corporation and then meticulously mapped out a land use plan for the property. The plan involved cleaning up and reclaiming the land piece by piece, with parcels being set aside for open space, community use and new residential, commercial and industrial development.

Recognizing the merits of Earth Conservancy's divide-and-conquer approach, starting in 2003, the U.S. Environmental Protection Agency (EPA) began supporting the nonprofit's efforts with a series of cleanup grants. As of 2015, EPA's Brownfields Program had awarded Earth Conservancy 12 grants totaling \$2.4 million. With that seed funding, the organization has already reclaimed nearly 2,000 acres of mine-scarred lands.

The Opportunity

Throughout much of Pennsylvania's history, coal has been a key driver of economic growth. In the 1700s, coal powered the colonial iron industry. From the 1800s through the early 1900s, it was the primary fuel used in steel manufacturing. By 1918, the state's coal production peaked at 276 million tons. After World War II, as the steel industry declined, coal became a feedstock for electricity generation.

Until the mid-1900s, coal was mined without formal regulation and with little thought paid to the environmental consequences. When all available coal was extracted from a mining site, operators simply moved to another area, abandoning the



Earth Conservancy oversaw construction of this stormwater basin to manage acid mine drainage at the Hanover 9 site.

EPA Grant Recipient:

Earth Conservancy

Grant Type:

EPA Brownfield Cleanup Grants

Former Use:

Coal mining and prospecting

Current and Planned Uses:

Open space, recreational trails, a community college dormitory, a new roadway and residential, commercial and industrial development



Abandoned mining pits filled with stagnant, polluted water and trash were typical on the property, including at the Hanover 9 site, Parcel A.



The pond at the Concrete City site is transforming into wetland habitat as part of its recovery from acid mine drainage.

“Starting with one large piece of mine-scarred land, Earth Conservancy’s unique approach to brownfield redevelopment has been to parcel off and address the contamination on the property piece by piece, with a variety of reuses and outcomes to benefit the community.”

— Mickey Young
Project Officer
EPA Region 3



Developers plan to build townhomes on a portion of the reclaimed Franklin Bank parcel.

previous mines. Across Pennsylvania, more than 250,000 acres of mine lands were abandoned, scarring the landscape with environmental and safety hazards. As a result, more than 5,000 miles of the state’s waterways are polluted from mine drainage, and many people have been injured or killed, or suffered property damage from unsafe and unstable mines.

In Luzerne County, Earth Conservancy grasped the opportunity to purchase an expansive land holding following the bankruptcy of the Blue Coal Company. The property, which was used both for mining and storing culm (refuse coal screenings), had been dormant for decades.

“We developed a comprehensive land use plan that has served us well, and we continue to follow it today,” says Michael Dziak, president and CEO of Earth Conservancy. The plan identified more than 3,000 acres needing reclamation due to mine scarring and pollution. Further, it earmarked reserving 10,000 acres for green space, 2,800 acres for residential development and 2,200 acres for economic development.

Funding from EPA’s Brownfields Program, the Pennsylvania Department of Environmental Protection’s Growing Greener Program, the U.S. Department of the Interior’s Office of Surface Mining Reclamation and Enforcement and the Pennsylvania Department of Community and Economic Development helped Earth Conservancy get the ball rolling on nearly 50 projects.

“Support from the EPA Brownfields Program has been of particular importance,” Dziak says, “enabling us to leverage other funds necessary to complete this work.”

To date, Earth Conservancy has pulled in a total investment of \$42.8 million to tackle pollution on numerous tracts of land, cleaning them up and making them available for mixed-use development, as well as recreational use and green space.

Selected Projects

Concrete City Silt Pond Reclamation. On the border of the city of Nanticoke and Hanover Township, the Concrete City project reclaimed a 36-acre site located near a suburban neighborhood. Historically, the site was used as a repository for coal mine waste. Over time, the acid mine drainage polluted the Nanticoke Creek watershed. Reclamation involved grading and recontouring a portion of the site, as well as installing soil and compost to encourage the growth of native plants. Currently, the pond on the site is recovering naturally, creating habitat for wetland-loving birds such as herons. The area will remain as open space. *Total project cost: \$333,000.*

Franklin Bank Reclamation Project. In Hanover Township, near the border of the city of Wilkes-Barre, the Franklin Bank

project involved a 14.75-acre site previously used to hold large amounts of residual culm. The surrounding area is residential, predominantly single-family homes. The sparse scrub vegetation that grew on the property offered the watershed little protection from the acid mine drainage. The reclamation project removed a significant volume of waste material from the site, and crews then regraded and contoured the land. Once the project was completed, Earth Conservancy sold the site, which is under development to feature townhouses. *Total project cost: \$337,000.*

Espy Run Wetlands Enhancement Project. Espy Run is a tributary to the Nanticoke Creek watershed and Susquehanna River. In 1994, Earth Conservancy piloted a project to construct wetlands with a passive system to treat approximately 500 gallons of water per minute from the Espy seep. The project demonstrated that constructed wetlands can be an efficient system for treating acid mine drainage. In 2011, a follow-up project installed an enhanced system with two new settling ponds—large, shallow pools that allow iron to settle out of the water as it flows through. Water then exits into a pond filled with water-loving plants like cattails, whose roots act as sponges catching and holding the remaining iron and sediment. The enhanced system more than doubled the aeration capability and treatment capacity of the initial wetland and is now able to treat the entire Espy Run discharge. Water now entering Espy Run is virtually free of iron. *Total project cost: \$240,000.*

Hanover 9 Reclamation Project, Phase I, Parcel A. The 390-acre Hanover 9 property is predominantly in Hanover Township, but the 70-acre Parcel A lies in the city of Nanticoke. Phase I was the first of several projects undertaken to reclaim the entire Hanover 9 strip mine site. The project reclaimed a 37-acre section of land adjacent to Luzerne County Community College. Crews graded and recontoured the site, which now offers options for mixed-use development and conservation. Discussions are underway to sell a portion of the site to a developer who plans to build student housing for the college. *Total project cost: \$688,000.*

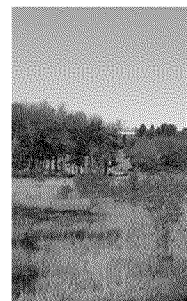
The Hanover 9 project also includes construction of a 3.5-mile segment of roadway on reclaimed property Earth Conservancy donated to the state. The new South Valley Parkway will reduce traffic on nearby Middle Road, increasing safety in the surrounding residential area and improving access to the college from Interstate 81. At an estimated cost of \$35 million, the project will open up opportunities for additional mixed density infill development on the underutilized land in the area.

Hanover 9 Reclamation Project, Parcels B, C and D. Follow-up actions on additional Hanover 9 parcels involve filling pits,



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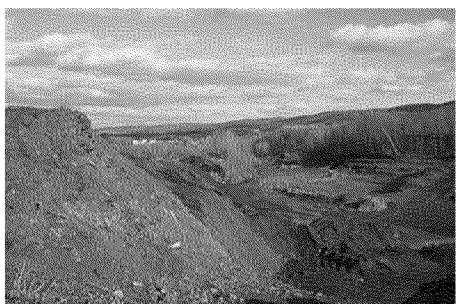
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This reclaimed section of Hanover 9, Parcels B, C and D, is ready for reuse.



Construction is underway to clean up culm banks and other mining damage at the Bliss Bank site.

For more information:

Visit the EPA Brownfields website at epa.gov/brownfields or contact Mickey Young at (215) 814-3069 or young.mickey@epa.gov.

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grading and recontouring. The entire Hanover 9 site is intended for mixed-use development, including recreational and green spaces. *Total project cost: \$1 million.*

Bliss Bank Reclamation Projects, Parcels A and B. Bliss Bank was used as a mining overburden holding area. Overburden consists of rock and coal fragments with a burn capacity that was too low for use in electricity generation or remining. Projects planned for Parcels A and B will reclaim approximately 40 acres of mining-scarred land. Currently in the construction phase, these projects are intended to prepare the sites for mixed-use development because of their proximity to Luzerne County Community College. *Total project cost (projected): \$1.5 million.*

Bliss Bank Reclamation Projects, Phase II, Parcels C and D. Follow-up projects at Bliss Bank will clean up another 83 acres degraded with massive stockpiles of culm. In addition to grading and contouring the site, crews will perform significant stormwater management work on Parcel D, including construction of 7,100 square yards of conveyance channels and a 14-acre detention basin, as well as establishment of a riparian buffer. Currently in the design phase, these projects will prepare the site for future mixed-use development. *Total project cost (projected): \$1.5 million.*

Warrior Run Reclamation Project. This project aims to clean up approximately 14 acres of mining debris located just outside a residential neighborhood in the Warrior Run Borough. Grading and recontouring will prepare this parcel for potential residential development due its proximity to existing transportation and utility infrastructure. *Total project cost (projected): \$273,000.*

The Benefits

Earth Conservancy projects in Luzerne County are helping turn back the clock on nearly 200 years of neglect to the local environment. Where a decade ago, pits of brown, polluted water sat idle, today native plants grow and waterfowl swim and graze. Scarred mountainsides have been recontoured and regraded. And, abandoned mounds of mining debris have been removed to facilitate nature's recovery and a return of underutilized land to the community as open space, recreational land and a clean slate for new development.

"We've built about 20-plus miles of trails that are open for public use," Dziak says, "and we just completed a transaction with the Pennsylvania Department of Conservation and Natural Resources

where we're donating more than 3,000 acres with views overlooking the Susquehanna River that will stay green forever."

Reclaiming these properties also supports the county's rebirth and re-visioning for growth in a post-coal-mining economy. "We're generating interest," Dziak says. "With the community college here, developers come in knowing there are opportunities. Adjacent properties are looked at more favorably, which helps overall growth. This will be huge for the county."